

CLAIMS:

1. In a valve of the pilot type comprising a housing with a flow chamber and a control chamber; said housing further having an inlet port in constant communication with said flow chamber, an outlet port in communication with
5 said flow chamber via a valve seat formed in the housing, said valve further comprising a pilot channel connecting said outlet port to said control chamber and closeable by a movable control member,
an integral flexible diaphragm separating said flow chamber from said control chamber and disposed opposite said valve seat, wherein said diaphragm
10 has a peripheral annular part and a central part both tightly fixable to the housing, and an intermediate annular part movable to close said valve seat, said pilot channel being obtained through said central part.
2. The integral flexible diaphragm of Claim 1, wherein said intermediate annular part comprises an internal flexible ring, an external flexible ring, and a
15 valve ring therebetween constituting one piece of material, for closing said valve seat.
3. The integral flexible diaphragm of Claim 2, wherein at least one of said two flexible rings has wave-like sectional profile.
4. The integral flexible diaphragm of Claim 2, further comprising a
20 relatively rigid ring tightly fitted to said valve ring thereby adapting the latter to abut said valve seat.
5. The integral flexible diaphragm of Claim 1, wherein said central part is fixable to the housing by means of a hard-material member tightly inserted in an orifice in said central part and accommodating said pilot channel.
- 25 6. The integral flexible diaphragm of Claim 5, wherein said hard-material member is made of at least one of the following: metal, metal alloy, polymer, rubber, and composite material

7. The integral flexible diaphragm of Claim 1, wherein a bleed channel connecting said flow chamber to said control chamber is obtained through said intermediate annular part.
8. The integral flexible diaphragm of Claim 1, wherein a bleed channel
5 connecting said flow chamber to said control chamber is formed in a member made of hard material and tightly sealed to an opening in said diaphragm.
9. The integral flexible diaphragm of Claim 1, wherein said central part is made as one piece of material with said intermediate annular part.
10. The integral flexible diaphragm of Claim 9, wherein said pilot channel
10 has a pilot seat adapted to face said movable control member, said pilot seat constituting integral part of said central part.
11. The integral flexible diaphragm of Claim 8, wherein said pilot channel has a pilot seat adapted to face said movable control member, said pilot seat being formed as a hard-material part tightly mounted to said central part.
- 15 12. The integral flexible diaphragm of Claim 1, wherein said housing is assembled from two or more parts and said diaphragm is such that said peripheral annular part and said central part thereof can be tightly fixed to said housing when said parts thereof are tightened to each other.
- 20 13. A valve of the pilot type comprising a housing with a flow chamber and a control chamber; said housing further having an inlet port in constant communication with said flow chamber, an outlet port in communication with said flow chamber via a valve seat formed in the housing, said valve further comprising an integral flexible diaphragm separating said flow chamber from said control chamber and disposed opposite said valve seat, and a pilot channel
25 connecting said outlet port to said control chamber and closeable by a movable control member,
wherein said diaphragm has a peripheral annular part and a central part both tightly fixed to the housing, and an intermediate annular part movable to close said valve seat, said pilot channel being obtained through said central part.

14. The valve of Claim 13, wherein said moveable control member is driven by a solenoid.

15. The valve of Claim 13, wherein said moveable control member is driven pneumatically.